Acoustic Barrier (Height: 6 m)

Transformer

10 m

Legend

Project Components

- Wind Turbine (38)
- Napier Turbine
- Substation
- Participating Receptor
- Project Area
- Investigation Area (1.5 km from the noise source)

Predicted Sound Level at Wind Speed of 6 m/s

- 40 dB(A) at 1.5 m agl*
- 40 dB(A) at 4.5 m agl*
- 40 dB(A) at 7.5 m agl*

*agl: Above Ground Level

Other Components

- 1-Storey Receptor
- 2-Storeys Receptor
- 3-Storeys Receptor
- Vacant Lot Receptor
- Other Building
- Railway
- Freeway
- Arterial / Collector
- Local Road / Street
- Permanent Watercourse
- Intermittent Watercourse
- Runway
- Residential Area
- Park / Sports Field
- Campground
- Cemetery
- Pit or Quarry
- Waterbody
- Wetland
- Wooded Area
- Lot Line
- Municipal Boundary
- County Boundary

0 0.5 1 2 km

NEXTera ENERGY

Adelaide Wind Energy Centre

38 TURBINE LAYOUT WITH SIMULATED NOISE ISOCONTOURS (WIND SPEED OF 6 m/s) GE 1.6-100

GL Garrad Hassan

1009-015-120814-001-RG

August 14, 2012

Projection: UTM Zone 17, NAD83

Sources: Ontario Base Mapping, Ontario Road Network, Land Information Ontario, Geobase, CanVec, Industry Canada.

Shadow Flicker - Adelaide Wind Energy Centre

Shadow flicker may occur under certain combinations of circumstances with regards to the sun's position and wind direction; when the sun passes behind the rotating blades of a wind turbine, a moving shadow is cast in front of or behind the turbine. When viewed from a stationary position, the moving shadows cause periodic flickering of the sunlight, otherwise known as "shadow flicker".

The effect is most noticeable inside buildings, where the flicker appears through a window opening. The likelihood and duration of the effect depends on a number of variables, namely:

- Orientation of the building relative to the turbine;
- Wind direction: the shape and intensity of the shadow are determined by the position of the sun relative to the blades (the turbine rotor continuously yaws to face the wind so the rotor plane will always be perpendicular to the wind direction;
- Distance from turbine: the farther the observer from the turbine, the less pronounced the effect;
- Turbine height and rotor diameter: a larger turbine rotor diameter will cast a larger shadow, meaning a larger area will be prone to incidences of shadow flicker;
- Time of year and day: position of sun relative to the horizon;
- Weather conditions: cloud cover reduces the occurrence of shadow flicker;
- Vegetation and other obstacles that help to mask shadows; and
- Whether or not the turbines are operating

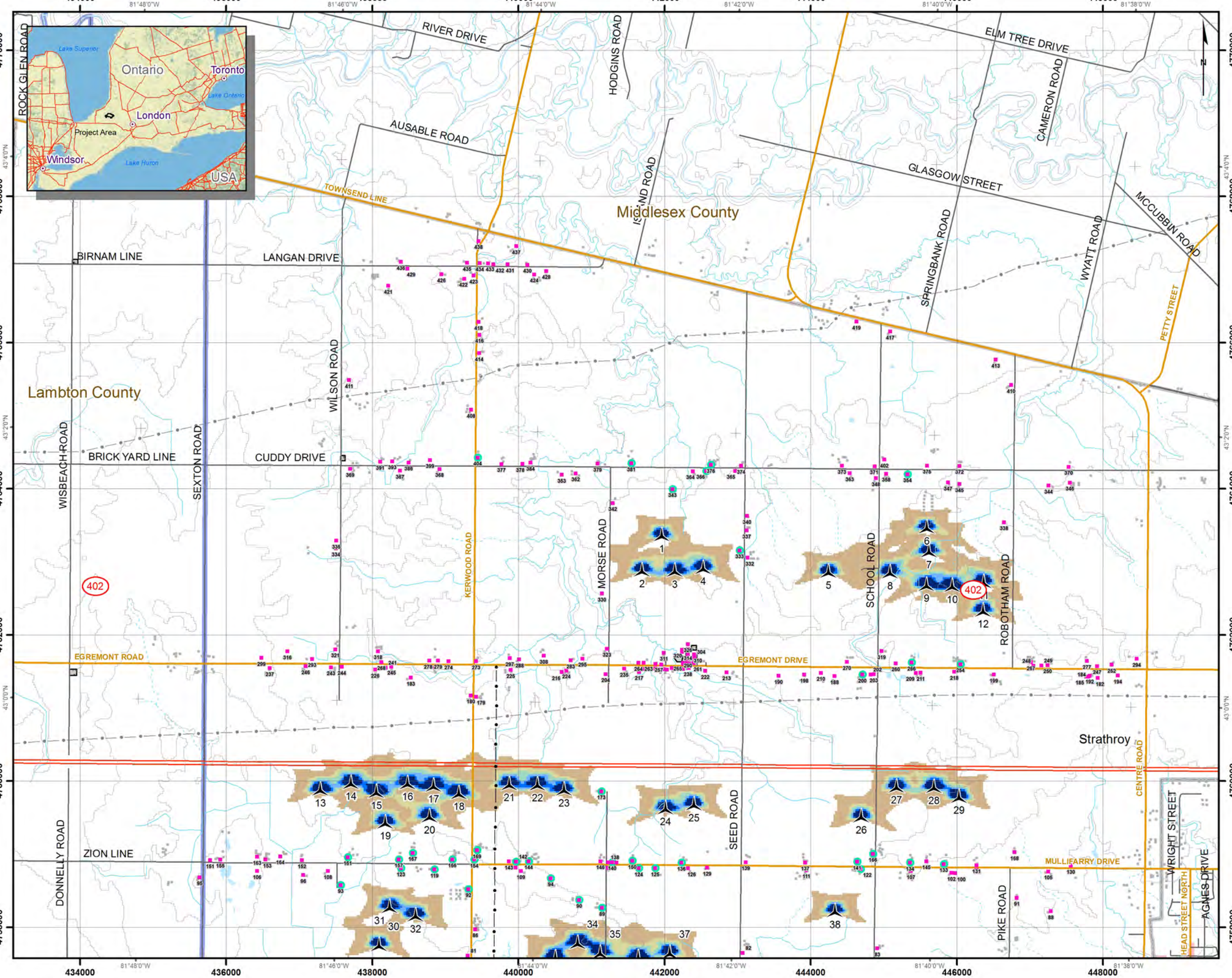
Shadow Flicker Assessment and Results

- To assess the effect of shadow flicker, receptor location, hourly meteorological data, topography of the wind farm site, and turbine specifications such as rotor diameter and hub height were considered.

- The worst case maximum shadow flicker per day was calculated to be 57 min/day and 18 hr/year.

- This is a conservative analysis as it does not account for

    - Operational downtime due to low winds, high winds or maintenance
    - The amount of time the turbine is not directly facing the sun which will reduce the area of the projected shadow thus the shadow flicker incidence
    - The presence of vegetation and other physical barriers
    - The amount of aerosols (moisture, dust, smoke, etc.) in the atmosphere



Legend

Project Components

- Wind Turbines (38)
- Participating Dwelling

Other Components

- Dwelling
- Transmission Line
- Railway
- Freeway
- Arterial / Collector
- Local Road / Street
- Pipeline
- Permanent Watercourse
- Intermittent Watercourse
- Contour (Interval: 10m)
- Residential Area
- Waterbody
- Lower/Single Tier Municipality
- Upper Tier Municipality

Shadow Flicker [hour/year]

- 30 - 59
- 60 - 89
- 90 - 119
- 120 - 149
- 150 - 179
- 180 and over

kilometres

0 0.75 1.5 3

NEXTera ENERGY

Adelaide Wind Energy Centre

SHADOW FLICKER ANALYSIS

GL Garrad Hassan

1009-002-121211--001-JM

Februrary 22, 2011

Projection: UTM Zone 17, NAD83
Sources: Ontario Base Mapping, Ontario Road Network, Land Information Ontario, Geobase, CanVec, Industry Canada.

438000 440000 442000 444000 446000

4764000 4762000 4760000 4758000

KERWOOD ROAD

EGREMONT DRIVE

MULLIFARRY DRIVE

1 2 3 4 5 6 7 8 9 10 11 12 13

Air1

Kitchener
Sarnia
London
St. Clair
Lake St Clair
Chatham

Legend

Infrastructure Changes

Service Road
- Added
- Removed
- No Change

Collection System
- Added
- Removed
- No Change

Transmission Line
- **Added**
- **Removed**
- **No Change**

Disturbance Area
- Added
- Removed
- No Change

Project Components
- Wind Turbine (48) (November 16, 2011)
- Meteorological Tower
- Project Area
- Laydown Area
- Substation

Other Components
- Receptor
- Other Building
- Railway
- Freeway
- Arterial Road
- Local Road / Street
- Permanent Watercourse
- Intermittent Watercourse
- Residential Area
- Waterbody
- Wetland
- Wooded Area
- Lot Line

0 0.5 1 2 km

NEXTera ENERGY

Adelaide Wind Energy Centre

INFRASTRUCTURE CHANGE MAP
Page 1 of 4

GL Garrad Hassan

1008-038-160412-001-RG
CAN_Bornish_Optimized_72_8MW_Hybrid_GExle1_8_100RD_80HH_447_2Alts_GExle1_5_102RD_80HH_1T_20111116

July 04, 2012

Projection: UTM Zone 17, NAD83

Sources: Ontario Base Mapping, Ontario Road Network, Land Information Ontario, Geobase, CanVec, Industry Canada.

Legend

Infrastructure Changes

Service Road
- Added
- Removed
- No Change

Collection System
- Added
- Removed
- No Change

Transmission Line
- **Added**
- **Removed**
- **No Change**

Disturbance Area
- Added
- Removed
- No Change

Project Components
- Wind Turbine (48) (November 16, 2011)
- Meteorological Tower
- Project Area
- Laydown Area
- Substation

Other Components
- Receptor
- Other Building
- Railway
- Freeway
- Arterial Road
- Local Road / Street
- Permanent Watercourse
- Intermittent Watercourse
- Residential Area
- Waterbody
- Wetland
- Wooded Area
- Lot Line

0 0.5 1 2 km

NEXTera ENERGY

Adelaide Wind Energy Centre

INFRASTRUCTURE CHANGE MAP
Page 2 of 4

GL Garrad Hassan

1008-038-160412-001-RG
CAN_Bornish_Optimized_72_5MW_Hybrid_GEver1_6_100RD_80HH_44T_2ARs_GEvar1_5_100RD_80PH_1T_20111116

July 04, 2012

Projection: UTM Zone 17, NAD83

Sources: Ontario Base Mapping, Ontario Road Network, Land Information Ontario, Geobase, CanVec, Industry Canada.

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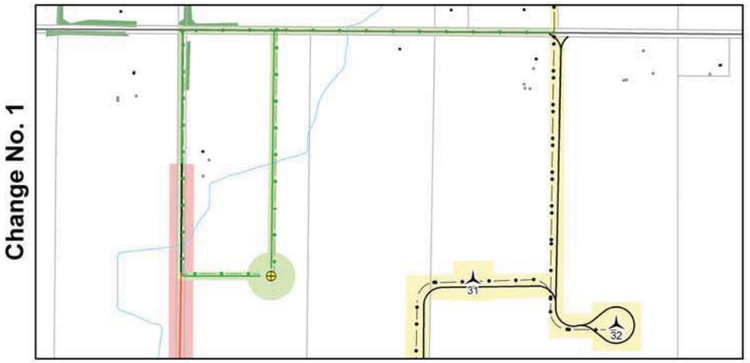

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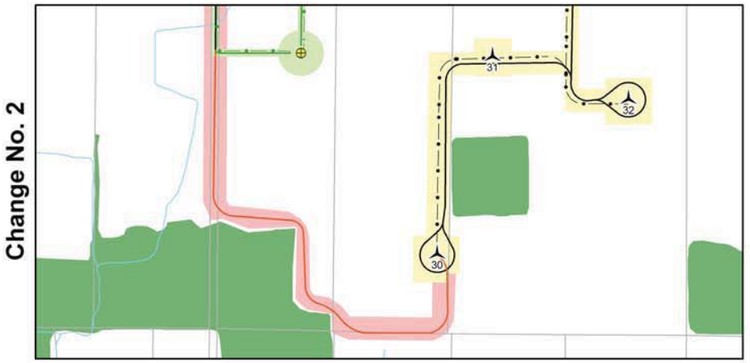

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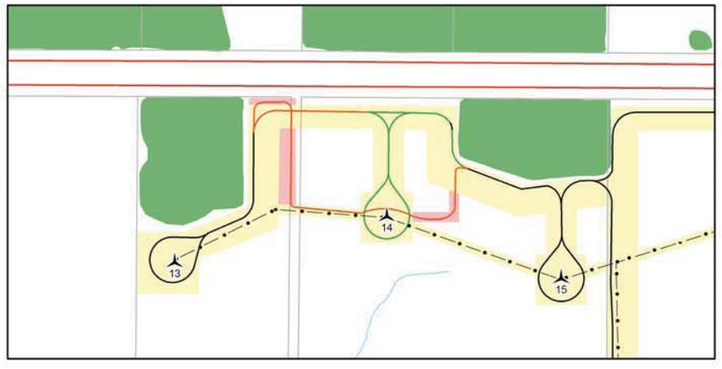

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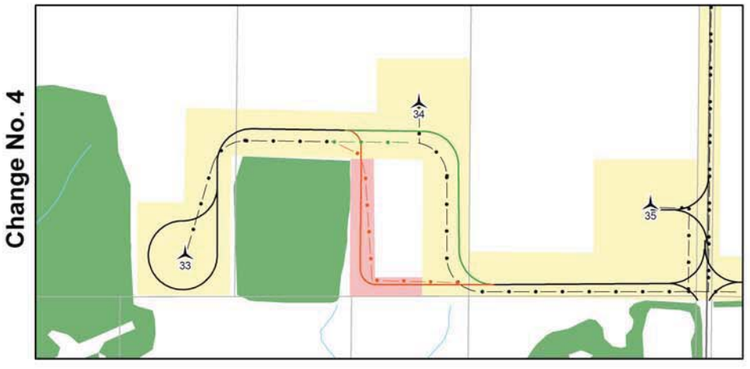

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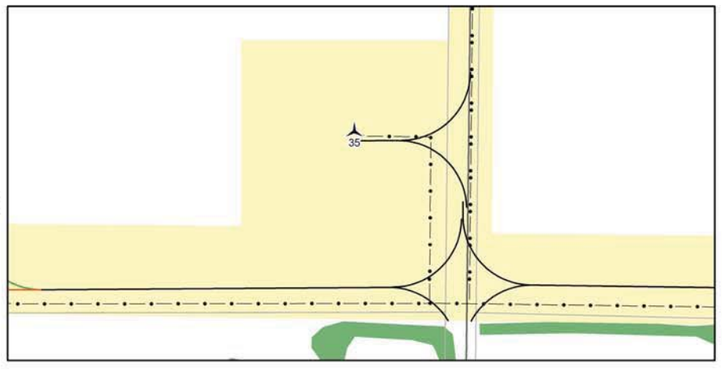

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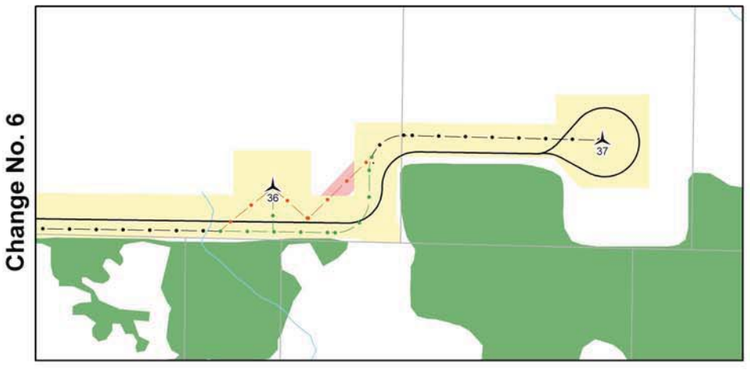

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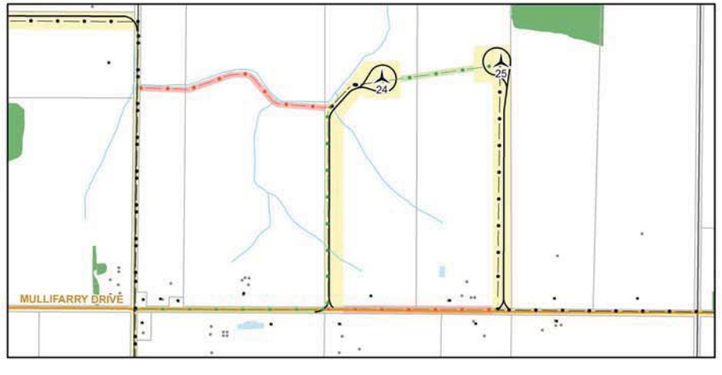

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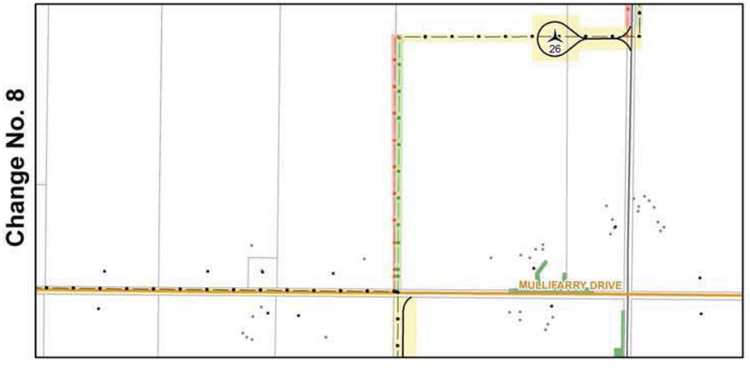

Legend

Infrastructure Changes

Service Road
- Added
- Removed
- No Change

Collection System
- Added
- Removed
- No Change

Transmission Line
- **Added**
- **Removed**
- **No Change**

Disturbance Area
- Added
- Removed
- No Change

Project Components
- Wind Turbine (48) (November 16, 2011)
- Meteorological Tower
- Project Area
- Laydown Area
- Substation

Other Components
- Receptor
- Other Building
- Railway
- Freeway
- Arterial Road
- Local Road / Street
- Permanent Watercourse
- Intermittent Watercourse
- Residential Area
- Waterbody
- Wetland
- Wooded Area
- Lot Line

NOTES:

CHANGE NO. 1
Establishement of new meteorological tower and infrastructure

CHANGE NO. 2
Removed access to previously proposed turbine

CHANGE NO. 3
Road network connecting turbines 13, 14 and 15

CHANGE NO. 4
Direct link between turbines 33 and 34

CHANGE NO. 5
Turbine 35 moved 5 m West

CHANGE NO. 6
Collection re-routed along perimiter of lot

CHANGE NO. 7
Collection re-routed in two locations

CHANGE NO. 8
Collection system moved from public ROW to private property

NEXTera ENERGY

Adelaide Wind Energy Centre

INFRASTRUCTURE CHANGE MAP
Page 3 of 4

GL Garrad Hassan

1008-038-160412.001.IRG
CAN_Bornish_Optimized_72_5MW_Hybrid_GEx1.5_100RD_80HH_44T_2Alts_GEx1.5_100RD_80HH_1T_20111116

July 04, 2012

Projection: UTM Zone 17, NAD83

Sources: Ontario Base Mapping, Ontario Road Network, Land Information Ontario, Geobase, CanVec, Industry Canada.

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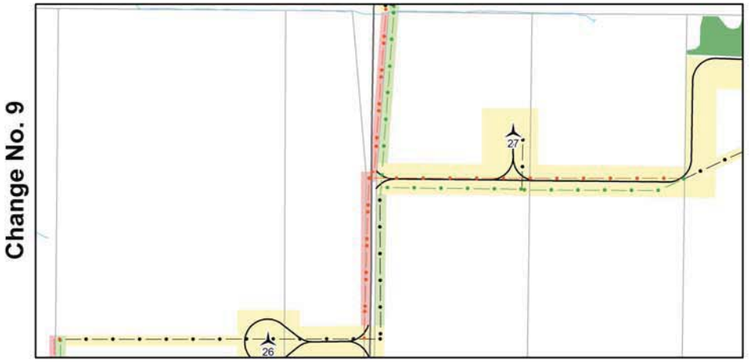

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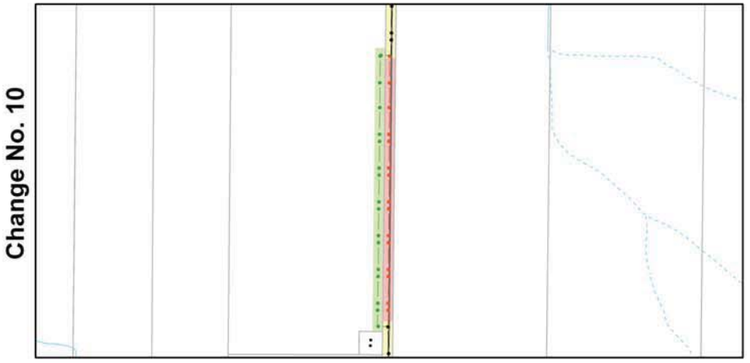

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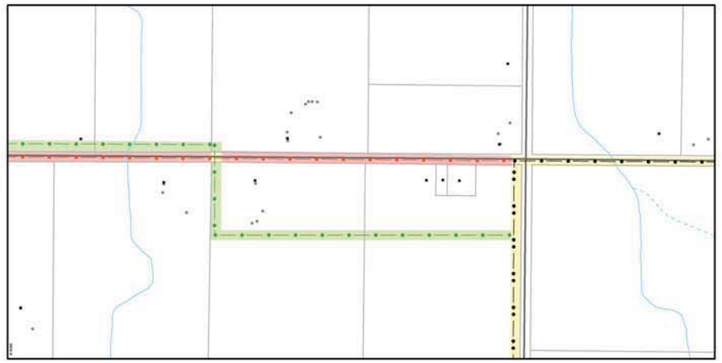

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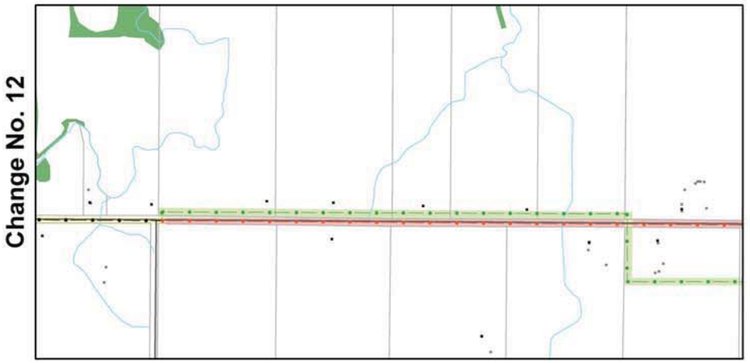

Change No. 13

Change No. 14

Change No. 15

Legend

Infrastructure Changes

Service Road
- Added
- Removed
- No Change

Collection System
- Added
- Removed
- No Change

Transmission Line
- **Added**
- **Removed**
- **No Change**

Disturbance Area
- Added
- Removed
- No Change

Project Components
- Wind Turbine (48) (November 16, 2011)
- Meteorological Tower
- Project Area
- Laydown Area
- Substation

Other Components
- Receptor
- Other Building
- Railway
- Freeway
- Arterial Road
- Local Road / Street
- Permanent Watercourse
- Intermittent Watercourse
- Residential Area
- Waterbody
- Wetland
- Wooded Area
- Lot Line

NOTES:

CHANGE NO. 9
Collection system moved from public ROW to private property

CHANGE NO. 10
Collection system moved from public ROW to private property

CHANGE NO. 11
Collection system moved from public ROW to private property

CHANGE NO. 12
Collection system moved from public ROW to private property

CHANGE NO. 13
Turbine 2 moved 62 m East

CHANGE NO. 14
T-Line moved 50 m onto private easement

CHANGE NO. 15
Relocation of Parkhill Substation

NEXTera ENERGY

Adelaide Wind Energy Centre

INFRASTRUCTURE CHANGE MAP
Page 4 of 4

GL Garrad Hassan

1008-038-160412.001.RG
CAN_Bornish_Optimized_72_5MW_Hybrid_GEx1.5_100RD_80HH_44T_2Alts_GEx1.5_100RD_80HH_1T_20111116

July 04, 2012

Projection: UTM Zone 17, NAD83

Sources: Ontario Base Mapping, Ontario Road Network, Land Information Ontario, Geobase, CanVec, Industry Canada.